full measure of protection of the scope to which he deems himself entitled. Claims 6, 7, 15, 16, 20, and 21 are independent.

Claims 1, 2, 5-11, and 14-19 were rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent Application Publication US 2002/0012521 A1 to Nagasaka et al.

First, cancellation of Claims 1, 10, and 19 renders the rejections of those claims moot. Further, the recitations of canceled Claim 1 have been incorporated into each of Claims 6 and 7, and the recitations of canceled Claim 10 have been incorporated into each of Claims 15 and 16.

The aspects of the present invention that are respectively set forth in the present independent claims, have as their purpose to extract specific scenes that correspond to a scene that is the object of a search from a plurality of moving-picture materials, to permit the editing and combination of the specific scenes into a single moving picture. Furthermore, a number of scenes to be extracted can be designated, as well as the time of a scene to be extracted.

Independent Claim 6 is directed to an image processing apparatus for processing a moving picture that comprises means for extracting frames constituting an entered moving picture, and means for discriminating a scene change by comparing frames extracted by the frame extraction means. Also provided are means for storing scene-change information relating to the discriminated scene change, and means for designating an image that corresponds to a scene that is the object of a search. Further provided are means for comparing a scene-change frame, which is obtained by referring to the scene-change information that has been stored in the storage means, and the image that

has been designated by the designation means. The apparatus is also provided with means for extracting a scene that corresponds to the image based upon a result of the comparison, and output means for editing scenes that have been extracted by the scene extraction means and combining these extracted scenes into a single moving picture. The designating means is capable of designating a number of scenes to be extracted.

One important feature of Claim 6 is that the designating means is capable of designating a number of scenes to be extracted.

Nagasaka et al., as understood by Applicant, relates to an image retrieving method and apparatuses therefor. In Nagasaka et al., images for each frame are sequentially inputted, and features are sequentially extracted from the inputted frame images and are converted into a feature series. The feature series is compressed in the direction of the time axis, and stored. Features are also sequentially extracted separately from the images to be retrieved for each inputted frame, and compared with the stored compressed feature series. Image scenes that match are retrieved.

Nagasaka et al. discusses extracting the same one scene such as an opening scene of a TV news program which is a fixed scene; however, nothing has been found in Nagasaka et al. that would teach or suggest designating means capable of designating a number of scenes to be extracted, as recited in Claim 6. Since Nagasaka et al. is not capable of designating a number of scenes to be extracted, Nagasaka et al. cannot extract a plurality of serial scenes, each of which has different contents.

Accordingly, it is respectfully submitted that Claim 6 is patentable over Nagasaka et al.

Independent Claims 15 and 20 arc method and computer-readable memory claims respectively corresponding to apparatus Claim 6, and arc believed to be patentable for at least the same reasons as discussed above in connection with Claim 6.

Independent Claim 7 is directed to an image processing apparatus for processing a moving picture that comprises means for extracting frames constituting an entered moving picture, and means for discriminating a scene change by comparing frames extracted by the frame extraction means. Also provided are means for storing scene-change information relating to the discriminated scene change, and means for designating an image that corresponds to a scene that is the object of a search. Further provided are means for comparing a scene-change frame, which is obtained by referring to the scene-change information that has been stored in the storage means, and the image that has been designated by the designation means. The apparatus is also provided with means for extracting a scene that corresponds to the image based upon a result of the comparison, and output means for editing scenes that have been extracted by the scene extraction means and combining these extracted scenes into a single moving picture. The designating means is capable of designating the time of a scene to be extracted.

By virtue of these features, an apparatus constructed according to Claim 7 makes possible things that would not be achievable with prior-art approaches. For example, when one week of TV programs is recorded, a drama series, episodes of which have been televised each day for thirty minutes, can be extracted from the TV programs by designating the time (i.e., thirty minutes) of scenes to be extracted, to permit the combination and outputting of the extracted drama series into a single moving picture. As

a result, a user can watch successively every scene of the drama series by reproducing this single moving picture.

As explained above, Nagasaka et al. discusses extracting the same one scene such as an opening scene of a TV news program which is a fixed scene; however, nothing has been found in Nagasaka et al. that would teach or suggest designating means capable of designating the time of a scene to be extracted, as recited in Claim 7. Since Nagasaka et al. is not capable of designating the time of a scene to be extracted, Nagasaka et al. cannot extract a plurality of serial scenes, each of which has different contents.

Accordingly, it is respectfully submitted that Claim 7 is patentable over Nagasaka et al.

Independent Claims 16 and 21 are method and computer-readable memory claims respectively corresponding to apparatus Claim 7, and are believed to be patentable for at least the same reasons as discussed above in connection with Claim 7.

A review of the other art of record has failed to reveal anything which, in Applicant's opinion, would remedy the deficiencies of the art discussed above, as references against the independent claims herein. Those claims are therefore believed patentable over the art of record.

The other claims in this application are each dependent from one or another of the independent claims discussed above and are therefore believed patentable for the same reasons. Since each dependent claim is also deemed to define an additional aspect of the invention, however, the individual reconsideration of the patentability of each on its own merits is respectfully requested.

In view of the foregoing amendments and remarks, Applicant respectfully requests favorable reconsideration and early passage to issue of the present application.

Applicant's undersigned attorney may be reached in our New York office by telephone at (212) 218-2100. All correspondence should continue to be directed to our below listed address.

Respectfully submitted,

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VERSION MARKED TO SHOW CHANGES TO CLAIMS

1. (Canceled)

2. (Twice Amended) The apparatus according to [claim 1] one of claims 6 or 7, wherein said comparison means includes computation means for computing degree of similarity between the scene-change frame and the image that has been designated by said designation means, and

wherein said scene extraction means extracts the scene corresponding to said image based upon results of [calculation] computation performed by said [calculation] computation means.

5. (Amended) The apparatus according to [claim 1] one of claims 6 or 7, wherein said designating means designates a pattern image that corresponds to any of a leading, intermediate or final frame of a scene that is the object of a search.

6. (Amended) [The] An image processing apparatus [according to claim 1,] for processing a moving picture, comprising:

frame extraction means for extracting frames constituting an entered moving picture;

discrimination means for discriminating a scene change by comparing frames extracted by said frame extraction means;

storage means for storing scene-change information relating to the scene change discriminated by said discrimination means;

designating means for designating an image that corresponds to a scene that is the object of a search;

comparison means for comparing a scene-change frame, which is obtained by referring to the scene-change information that has been stored in said storage means, and the image that has been designated by said designation means;

scene extraction means for extracting a scene that corresponds to the image based upon a result of the comparison performed by said comparison means; and

output means for editing scenes that have been extracted by said scene extraction means and combining these extracted scenes into a single moving picture,

wherein said designating means is capable of designating a number of scenes to be extracted.

7. (Amended) [The] An image processing apparatus [according to claim 1,] for processing a moving picture, comprising:

frame extraction means for extracting frames constituting an entered moving picture;

discrimination means for discriminating a scene change by comparing frames extracted by said frame extraction means;

storage means for storing scene-change information relating to the scene change discriminated by said discrimination means;

designating means for designating an image that corresponds to a scene that is the object of a search;

comparison means for comparing a scene-change frame, which is obtained by referring to the scene-change information that has been stored in said storage means, and the image that has been designated by said designation means;

scene extraction means for extracting a scene that corresponds to the image based upon a result of the comparison performed by said comparison means; and

output means for editing scenes that have been extracted by said scene extraction means and combining these extracted scenes into a single moving picture,

wherein said designating means is capable of designating the time of a scene to be extracted.

8. (Amended) The apparatus according to claim [1] 6, wherein said designating means is capable of designating a number of scenes to be extracted, with regard to frames prior to and with regard to frames on and after a frame corresponding to the pattern image.

9. (Amended) The apparatus according to claim [1] 7, wherein said designating means is capable of designating time of a scene to be extracted, with regard to frames prior to and with regard to frames on and after a frame corresponding to the pattern image.

10. (Canceled)

11. (Twice Amended) The method according to [claim 10] one of claims 15 or 16, wherein said comparison step includes a computation step, of computing degree of similarity between the scene-change frame and the image that has been designated in said designation step , and

wherein said scene extraction step includes extracting the scene corresponding to the image based upon results of [calculation] computation performed in said [calculation] computation step.

14. (Twice Amended) The method according to [claim 10] one of claims 15 or 16, wherein said designating step includes designating a pattern image that corresponds to any of a leading, intermediate or final frame of a scene that is the object of a search.

15. (Twice Amended) [The] An image processing method [according to claim 10,] for processing a moving picture, comprising:

a frame extraction step, of extracting frames constituting an entered moving picture;

a discrimination step, of discriminating a scene change by comparing frames extracted in said frame extraction step;

a storage step, of storing scene-change information relating to the scene change discriminated in said discrimination step;

a designating step, of designating an image that corresponds to a scene that is the object of a search;

a comparison step, of comparing a scene-change frame, which is obtained by referring to the scene change information that has been stored in said storage step, and the image that has been designated in said designation step;

a scene extraction step, of extracting a scene that corresponds to the image based upon a result of the comparison performed in said comparison step; and

an output step, of editing scenes that have been extracted in said scene extraction step and combining these extracted scenes into a single moving picture,

wherein said designating step includes designating a number of scenes to be extracted.

16. (Twice Amended) [The] An image processing method [according to claim 10,] for processing a moving picture, comprising:

a frame extraction step, of extracting frames constituting an entered moving picture;

a discrimination step, of discriminating a scene change by comparing frames extracted in said frame extraction step;

a storage step, of storing scene-change information relating to the scene change discriminated in said discrimination step;

a designating step, of designating an image that corresponds to a scene that is the object of a search;

a comparison step, of comparing a scene-change frame, which is obtained by referring to the scene change information that has been stored in said storage step, and the image that has been designated in said designation step;

a scene extraction step, of extracting a scene that corresponds to the image based upon a result of the comparison performed in said comparison step; and

an output step, of editing scenes that have been extracted in said scene extraction step and combining these extracted scenes into a single moving picture,

wherein said designating step includes designating the time of a scene to be extracted.

17. (Twice Amended) The method according to claim [10] 15, wherein said designating step includes designating a number of scenes to be extracted, with regard to frames prior to and with regard to frames on and after a frame corresponding to the pattern image.

18. (Twice Amended) The method according to claim [10] 16, wherein said designating step includes designating time of a scene to be extracted, with regard to frames prior to and with regard to frames on and after a frame corresponding to the pattern image.

19. (Canceled)

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